

U.S. Patent Application Serial No. 10/732,910
Amendment and Response to Office Action 8/5/2008
Reply to Office Action of Feb. 5, 2008

REMARKS

This paper is filed in response to the Office Action mailed February 5, 2008, in which claims 1-53 are pending in the present application. Claims 1-3 and 15-46 were previously withdrawn. claims 4-14 and 47-53 are rejected. Claims 4, 5, 7, 47, 48 and 52 have been amended herein.

Telephone Interview

Applicants kindly thank the Examiner for the telephone interview conducted on August 5, 2008. During the interview, the Examiner discussed the scope of the Provisional Application and possible claim amendments that may be supported by the Provisional Application.

Claim Objection

Claim 52 is objected to. Claim 52 has been amended herein to recite the term "ratio" as suggested by the Office Action.

Rejection—35 U.S.C. 102(b)

Claims 47, 51 and 52 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Sun *et al.*, Advanced Materials, 14, no. 11, pp. 833-837, June 5, 2002, and Sun *et al.*, Chem. Mater., no. 14, pp. 4736-4745, October 8, 2002. Furthermore, claims 51 and 52 are rejected under 102(b) as being allegedly anticipated by Sun *et al.*,

U.S. Patent Application Serial No. 10/732,910
Amendment and Response to Office Action 8/5/2008
Reply to Office Action of Feb. 5, 2008

Nano Letters, vol. 2 no. 2, pp. 165-168, January 3, 2002.

In the previous Amendment and Response filed November 21, 2007, applicants submitted that the Sun *et al.* articles were improper prior art references under 35 U.S.C. § 102(b) because the articles were published less than one year before the filing of the Provisional Application No. 60/432,098, filed on December 9, 2002. In the Office Action at pages 6 and 7, it is stated that the “[a]pplicant is correct only to the extent that the claims are fully supported under the first paragraph of 35 USC 112 in the provisional application.” The Examiner’s position is that “none of the instant claims are fully supported in the provisional application.” More particularly, page 7 of the Office Action states “[w]ith respect to claims 47-53, the provisional application contains no disclosure whatsoever of the forming of nanowires.” Respectfully, applicants submit that the provisional application supports the claims of the instant application and describes the production of nanowires, as discussed below

In Section 1 of the Provisional Application, on page 3, the specification teaches a method of manufacturing silver nanostructures resulting in a product including “some nanorods and nanowires.” In Section 2 of the Provisional Application, the last paragraph of page 2, the specification describes the reaction for making silver nanowires in the presence of PVP. Therefore, the Provisional Application provides support for the manufacture of silver nanowires as recited in claims 47-53.

Additional support for claims 47-53 may be found throughout the specification and figures of the Provisional Application. More particularly, in Section 1, page 3, the

U.S. Patent Application Serial No. 10/732,910
Amendment and Response to Office Action 8/5/2008
Reply to Office Action of Feb. 5, 2008

Provisional Application teaches the production of nanowires including obtaining a solution of silver nitrate in a solvent and obtaining a solution of PVP in a solvent. Page 3, paragraph 6, teaches solvents “such as methanol, ethanol, ethylene glycol, water, and their mixtures.”

In Section 2, page 4, the Provisional Application teaches that the morphology and dimensions of silver nanoparticles depends on reaction conditions such as temperature, the concentration of AgNO₃, and the molar ratio between the repeating unit of PVP and AgNO₃. Figures 2, 3, 4 and 6 show various nanoparticles products manufactured by selecting a desired reaction condition to yield a desired shape and size of nanoparticle.

Section 1, page 3, fifth paragraph, both figures 2 and 4, and Section 2, pages 3 and 4, teach combining a solution of silver nitrate and a solution of PVP in a solvent, wherein the concentration of AgNO₃ to PVP is at a molar ratio within the range from approximately 1 to approximately 10.

Furthermore, the Provisional Application provides support for additional reaction conditions. In one embodiment described in Section 1, page 3, the fourth paragraph, the Provisional Application teaches a silver nitrate concentration ranging from 0.1 to 0.3 mol/dm³. In other embodiments, figure 2 teaches a silver nitrate concentration of 0.25 mol/dm³ and figure 4 teaches a silver nitrate concentration of 0.125 mol/dm³. In still other embodiments, Section 2, page 4, teaches concentrations of silver nitrate higher than approximately 0.1M. In yet another embodiment, figure 6 teaches reaction

U.S. Patent Application Serial No. 10/732,910
Amendment and Response to Office Action 8/5/2008
Reply to Office Action of Feb. 5, 2008

temperatures decreased from 160°C to 100°C and the growth time elongated from 45 minutes to 5 hours.

For the foregoing reasons, applicants submit that the Provisional Application provides support for the current claims. As such, applicants affirm that the Sun *et al.* articles are improper prior art references under 35 U.S.C. § 102 (b).

Accordingly, applicants request that the rejection of claims 47, 51 and 52 under 35 U.S.C. § 102(b) be removed.

Rejection—35 U.S.C. § 103(a)

Claims 48-50 and 53 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sun *et al.*, Advanced Materials, 14, no. 11, pp. 833-837, June 5, 2002, and Sun *et al.*, Chem. Mater., no. 14, pp. 4736-4745, October 8, 2002. Furthermore, claims 47-50 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun *et al.*, Nano Letters, in view of Sun *et al.*, Advanced Materials, or Sun *et al.*, Chem. Mater..

As stated previously, the Sun *et al.* references were published during the one-year grace period before Provisional Application was filed on December 9, 2002. Furthermore, as discussed in the previous sections, the Provisional Application provides support for the claims of the instant application. As such, the Sun *et al.* references are not proper prior art references under 103(a).

Therefore, applicants request that the rejection of claims 47-50 and 53 under 35

U.S. Patent Application Serial No. 10/732,910
Amendment and Response to Office Action 8/5/2008
Reply to Office Action of Feb. 5, 2008

U.S.C. § 103(a) be removed.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun *et al.*, Advanced Materials, 14, no. 11, pp. 833-837, June 5, 2002, and Sun *et al.*, Chem. Mater., no. 14, pp. 4736-4745, October 8, 2002.

As discussed in the previous section, applicants respectfully submit that the Provisional Application provides support for the claims of the instant application and, as such, because the Sun *et al.* references were published less than one year before the filing date of the Provisional Application, the Sun *et al.* references are not proper prior art references for purposes of § 103.

With regard to specific support for claims 12-14 in the Provisional Application, Section 1, page 3, teaches a silver nitrate concentration ranging from 0.1 to 0.3 mol/dm³, a reaction time of approximately 10 to 60 minutes, and a PVP with a molecular weight of approximately 55,000. Section 2, page 4, teaches a molar ratio of PVP to silver nitrate from 1.5 to 3 and a reaction temperature of 120°C to 190°C.

For the foregoing reasons, applicants request that the rejection of claims 12-14 under 35 U.S.C. § 103(a) be removed.

Provisional obviousness-type double patenting

Claims 4-14 and 47-53 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-31 and 33-99 of copending Application No. 11/701974.

U.S. Patent Application Serial No. 10/732,910
Amendment and Response to Office Action 8/5/2008
Reply to Office Action of Feb. 5, 2008

Because this is a provisional rejection, applicants elect to respond to this rejection upon notice of allowance of the allegedly conflicting claims.

CONCLUSION

In view of the foregoing, it is believed that all of the claims are patentable in their present form, and a prompt notice of allowance for this case is respectfully requested. As mentioned above, if the Examiner finds any remaining impediment to the prompt allowance of this application, please contact the undersigned attorney.

DATED this 5 day of August, 2008.

Respectfully submitted,

/Yury M. Colton/

Yury M. Colton, Ph.D.
Attorney for Applicant
Registration No. 55,081

STOEL RIVES LLP
201 South Main Street
Salt Lake City, Utah 84111
Telephone: (801) 578-6998
Facsimile: (801) 578-6999